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INSANITY FOLLOWING THE USE OF ANÆSTHETICS IN OPERATIONS.

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In treating this subject it will be first necessary to clear away, as much as possible, any fallacies which might induce us to attribute too much importance to any one cause in the production of mental disorder. All writers and observers have noticed that it is very rarely that one cause alone is efficient for the production of any attack of insanity, and that usually there are several predisposing causes which may have been in operation for a long time, as well as one or more exciting causes which may have been in action for much shorter periods.

In the subjoined paper I only point out that I have met with a series of cases of insanity in which the use of anæsthetics, in predisposed subjects, has been followed by insanity. To make the matter more clear I have collected together similar cases which have followed similar causes, such as alcohol, belladonna, etc. I think by this means to be able to show that the relationship is truly causal.

I will at once place before you several propositions which I hope to prove.

Any cause which will give rise to delirium may set up a more chronic form of mental disorder quite apart from any febrile disturbance. (*a*) The most common form of mental disorder which comes on in such cases is of the type of acute delirious mania; (*b*) though such mental disorder is generally of a temporary character, it may pass into chronic weak-mindedness, or it may pass into (*c*) progressive dementia which cannot be distinguished from general paralysis of the insane.

To return to the first group, then; any cause producing delirium may produce a more permanent disorder of the mind. Alcohol is the first and most common example of such a cause. Insanity frequently follows alcoholism. It may occur in persons who have had delirium tremens once or more often. In such cases the symptoms of mental disorder may follow the delirium tremens, but instead of the delirious stage passing off it becomes established. Thus the hallucinations, instead of being changing and variable, become constant, and may enter into some organised delusion, such as that a plot is being started or a conspiracy formed. Refusal of food is very common in such cases. With this a fresh start may be made, so that the patient, instead of suffering from delirium tremens, now suffers from acute delirious mania, the creamy tremulous tongue gives place to a dry and brown one, the delirium passing at the same time into a low muttering typhoid form. Besides these cases occurring in chronic drinkers, there are others in which a single bout of drinking or moderate drinking associated with some shock or some cause of vital depression is followed by a similar development of acute delirious mania, and it is to these cases I specially call notice in relationship to the attacks of insanity following the use of some anæsthetics. In both these sets of cases nervous instability, especially that due to insane inheritance, is the chief predisposing cause.

Take an example. A young man, whose father died weak-minded and whose sister had had two attacks of insanity, took during a few days a very large amount of spirit to tide him over a period of great business worry. He became sleepless, alarmed, hallucinated, and then delirious. This was the onset of a well-marked attack of acute delirious mania; the symptoms which made the illness appear to be delirium tremens passed off, and left the maniacal excitement persisting. This excitement was followed by a period of exhaustion and mental weakness, from which a good recovery was made. I find that such cases are not uncommon in nervous families. Drink, then, may start a disorder beginning with delirium tremens and ending in madness.

But beside alcoholic delirium I have to call attention to the fact that delirium accompanying fevers may start a similar set of symptoms. After scarlet fever or measles I have several times met with such disorders. Thus, one girl aged 17, bright, intelligent, and active, two of whose sisters and one brother had been insane and recovered, and whose mother, though not actually insane, was subject to periods of extreme mental depression; this girl contracted scarlet fever, early in the disease became very delirious, and after several days of excited sleepless delirium, became maniacal. The noisy, senseless chatter assumed a more organised form; the excitement was greater, but with less incoherence; eroticism of a very painful kind developed, and it was difficult to prevent open masturbation. She refused food, and her condition rapidly passed into a very dangerous typhoid one; she was removed to Bethlem, where, after several weeks of extreme violence and weakness, she passed into a state of temporary mental exhaustion—stupor—from which she slowly but certainly recovered, and has remained well ever since. In another case, a girl of about the same age, two of whose sisters were insane, and one brother epileptic, with a very eccentric father, developed acute delirious mania after measles; of which she died in a few days.

After the delirium of pneumonia, I have seen similar symptoms arise in nervous patients. What I have already said makes clear what I believe to be an established fact, that any of these febrile conditions may start an insane attack. I am inclined to think that those who come of insane stock are very often unusually liable to infection, and that having contracted an acute disease, they are more likely to have early and severe delirium.

Besides alcohol and fever, I give one case in which delirium of belladonna proved efficient in starting the insane process. A young girl belonging to a very neurotic stock took by accident a dose of belladonna liniment instead of a dose of cough mixture. For two days the medical man treated her delirious condition as due simply to the drug; but at the end of that time she remained still wild and delirious, and I was called in to see her. She passed through a sharp attack of mania of the delirious type, though the bodily illness was not extreme. As in most of the cases to which I have already referred, in the end the girl recovered. From the above, I think I am justified in saying that any toxic agent, more especially those which directly affect the nutrition of the nervous system, such as alcohol, lead, and belladonna, will cause temporary disorder of the intellectual functions, especially in the nervously unstable, and that this temporary disorder may assume the form of true insanity; that this insanity generally, though not always, assumes the form of acute delirious mania. We must not, however, forget that shock of any kind may produce similar mental disorder, and therefore in considering the insanity which follows operations we must not neglect the element of shock as a possible contributing cause. In some of my cases this has had the least possible force.

To proceed now to the more special part of my subject. I will first say that in my opinion it is the fact of temporary disturbance of function, and not the means by which this is produced, which is of most importance. I have seen cases following all the more usual anæsthetics. I shall begin by giving one good example of the effect which may be produced, as seen in what for my purpose may be called a crucial experiment.

A man, aged 26, single, who had been in the Cape Mounted Rifles, whose father died insane, whose mother is nervous, and whose maternal uncle was also insane, and in whose family phthisis and rheumatic fever have been present. The patient was said to have been easily upset by alcohol, and it is doubtful whether he followed the habits of most of his fellows at the Cape, but my own opinion is that he drank freely while there, but had no serious illness therefrom.

On admission he was suffering from very acute mania, was violent and destructive to a degree, so that it was difficult to keep him decently clad or out of harm's way. During one night he hammered at the shutters of his window so vigorously that he smashed them, and at the same time injured his hand. In the course of a few days his hand became much swollen and painful, at the same time his mind became clearer. The swelling continuing, it was thought well to put the patient under chloroform, to examine the hand, as it was too painful to allow examination without. No sooner was the chloroform given than the old maniacal ideas returned. He had the same antipathies, and the same delusions were expressed in the same words. The chloroform being recovered from, the patient returned to his more sensible state; and though with the healing of the hand there was a mental relapse, yet in the end he improved, and was discharged well.

In the next case we have another link in the chain of evidence. A young lady, aged 21, of no special nervous weakness, but with acquired neurosis, had an attack of hysterical mania, with great

eroticism, and finally acute delirious mania, of the worst possible type, with rapid development of bedsore and contraction of the lower limbs. She was for a time treated in a general hospital, but was altogether too violent for such an institution, and so was sent to Bethlem, where for some months we had our hands full, what with the moral perversion, the physical weakness, and the bedsores. In the end the patient went out mentally well, but unstable, as I should say from all I have heard; and this instability is of great value here, as though there appeared to be no neurosis in the family itself, the patient, by the first attack of insanity, seems to have passed into a state similar to that which might have been inherited, and which I call acquired neurosis. She went home, and was in most ways herself, but the trouble about walking was a source of worry, and after two years it was decided to operate, or, rather, to place the patient under chloroform, to see what could be done. The first attempt at giving chloroform failed, but a second succeeded. When the surgeon decided that only a very severe operation would do any good, this was abandoned. The young lady became depressed, and then excited, and passed through another maniacal attack, which has left her still more unstable. Her friends are inclined to think the chagrin at the non-success of the operation was the cause of the second breakdown, but I have no doubt the chloroform was the real cause.

In the next case, an elderly patient was operated upon for cancer about the rectum, and I add a few particulars kindly sent me by Mr. Ballance, of St. Thomas's Hospital. For the operation, ether was used; nothing noteworthy occurred during the administration, but the surgeon, Mr. Croft, says that when the patient became conscious, it was at once noticed that his mind was affected.

When admitted into Bethlem, he was in a very weak condition, both of mind and body. He was restless, incoherent, repeating meaningless expressions. His memory seemed very defective. He had all the aspect of a man half-drunk, or, more still, of one who had only half awakened from some anæsthetic. He improved to some extent, but remained so apparently weak in mind that I allowed his friends to take him home as a probably harmless dement. He remained in this state for a few weeks after his return home, and then almost suddenly recovered. He returned to show himself to me, and I failed at first to recognise in the bright, intelligent clergyman the dull dement who had so recently left this hospital. I looked upon his case as one in which really the mental functions had been disturbed in an old and enfeebled man, and did not recover for a considerable time, and then almost as suddenly as they had been lost. In this case the family record is defective.

In the next case, kindly communicated to me by Dr. H. Selfe Bennett, the relationship between the anæsthetic and the insanity seems clear enough: A young married lady, mother of one child aged 10 years, at whose birth transfusion had to be performed and stimulants largely ordered. This patient used to send to the doctor from time to time for hysterical attacks. He found these were due to alcohol. After three years of medical care she was found to have developed into a chronic drinker. She never had delirium tremens, or any other severe attacks beyond the hysteria (which, by the way, is not uncommon in such conditions). One night the doctor was sent for, to find the patient delirious, conjunctivæ insensible, urine and fæces passed involuntarily; irregular movements of all kinds were being made, and speech was incessant. It was found that she had been as usual in the morning, and had gone to the dentist to have some teeth extracted. Nitrous oxide was used for this purpose, and the outbreak followed rapidly on this. She never regained her senses or recognised her friends. She was in a state of delirious mania for three weeks, then settled into dementia, in which she remains, silly and fat. The points in this case are the acquired nervous instability, the acute delirious mania, with its consecutive dementia, following in a few hours the use of nitrous oxide.

In several cases insanity has followed ovariotomy. One case is recorded by Mr. Barwell in the Clinical Society's *Transactions*, 1885. I have seen one case under Mr. Dent, at St. George's Hospital. In none of the cases which I have met with or which I have met records of did the symptoms follow immediately on the administration of the anæsthetic, and I see that it will not suffice to drag in these cases till I have more evidence than I have at present as to the part played by the different factors in the causation of the disorder.

I would only add under this head that there are several questions in regard to such cases which I must leave out of consideration in this paper, though I hope to return to their study at some other time. These cases naturally lead me to consider some in which insanity has followed parturition when chloroform has been given. I have met with several in which insanity has followed where chloroform has been given, when the women have had other children, both before and after, without anæsthetics, and have had no signs of mental disorder. This alone proves nothing; but I remember once meeting with the statement by a German writer that chloroform must be considered as one of the possible causes of puerperal insanity. One point needs further study: How long after an operation the effect of the anæsthetic may be felt.

In some of the cases referred to the symptoms followed at once, and there seems little room for doubt as to the cause; but in others hours or even days passed before any very characteristic effect followed, and I own it seems hard to connect these conditions. I will only say that I have seen a fair number of cases in which within a week after the operation there has been marked excitement; and in some of these, on careful investigation, I have found that there was unusual depression, heaviness, drowsiness, or irritability from the first; so that, though the maniacal attack was postponed, the disorder had started at the time of the operation.

I have still one other important branch of this subject to refer to. I have said that I have met with cases in which acute delirious mania followed the use of anæsthetics, and in some of these cases weak-mindedness has followed, lasting very variable periods. But I have now to refer to cases in which after the operation the progressive weakness of mind has been associated with progressive weakness of body, so that the patients have in the end died of a disease not to be distinguished from general paralysis of the insane. I could give several such cases, but one will serve as a type.

A single girl, a machinist, aged 30, maternal uncle insane, sister died of phthisis, had enjoyed good health till the time of the operation, which was the removal of a simple tumour from the breast. She had some fainting fits for some months before this. At once after the operation she was noticed to be changed in character, irritable and exacting, unstable, with weakened control and loss of memory. On admission she had tremors, hesitation in speech, defective memory, pupils unequal. Her state was that of genuine general paralysis. She died after only five months in the hospital. *Post-mortem* we found wasting of brain, with excess of fluid, adhesions of membranes to cortex.

At present I have an almost precisely similar case following operation for cancer in the breast, except that the disease has progressed much more slowly.

In the above paper I have thrown together the experience of many years; and, though the time at my disposal will not allow of my placing on record all the cases in their order, I trust that enough evidence has been brought forward to induce others to give their experience, and thus establish a relation or destroy a fallacy.

One or two practical questions arise for the surgeon, one of the most important being whether neurotic inheritance or neurosis in the individual, as proved by previous attacks of insanity, should in any way affect the prognosis in operations, and to what degree it should interfere with operations of convenience not essential for the prolonging or saving life.

THE THEORY AND PRACTICE OF OPERATION FOR THE RADICAL CURE OF HERNIA.

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In overlooking the field of modern surgical development, so much is seen of the inductive process by which ingenious theory is constructed as the apology for novelty of practice, that we regard with pleasure the more Socratic method by which a practice appears as the outcome of the establishment of a great scientific principle.

If there is one thing more evident than another in the context of the subject of the treatment of hernia for its radical cure, it is that the increasing frequency with which surgeons select the operation by dissection, or open operation, as it is called, is a natural deduction from the doctrine of the germ theory of disease and its antiseptic teaching.

That the open operation is beating other methods out of the field is not to be wondered at, when we consider how comparatively safe a procedure it has become under the teachings of Lister, and what certainty and precision it offers compared with the older plans of treatment. On these three grounds of safety, certainty, and precision, it may challenge comparison with any of the older special operations, of which, perhaps, Wood's has shown the most satisfactory